At your side.

brother

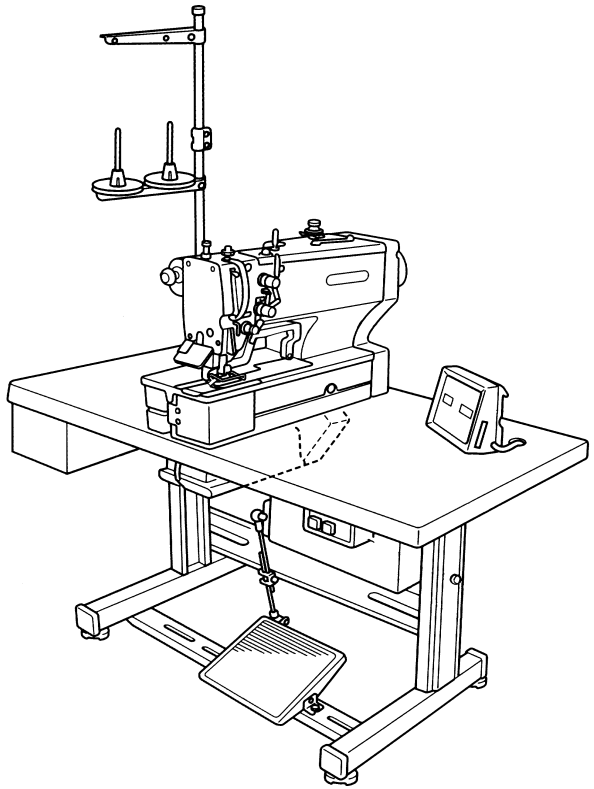
Electronic
Excellent
Economical

E Series

LH4-B800E

ELECTRONIC LOCKSTITCH BUTTON HOLER

PRODUCT MANUAL



Contents

Understanding the symbols

B800E ONLY Indicates a function which is unique to Brother's B800E model.

WOVEN Indicates a function which is particularly useful for woven products.

KNIT Indicates a function which is particularly useful for knitted products.

The need for electronic lockstitch button holers

Background

The advantages of electronic sewing machines:

You can change the sewing pattern using an operation panel, which is much easier than for models which require separate cams for each pattern.

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Greater range and flexibility

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Flexibility is needed for buttonhole sewing when several different patterns are required.

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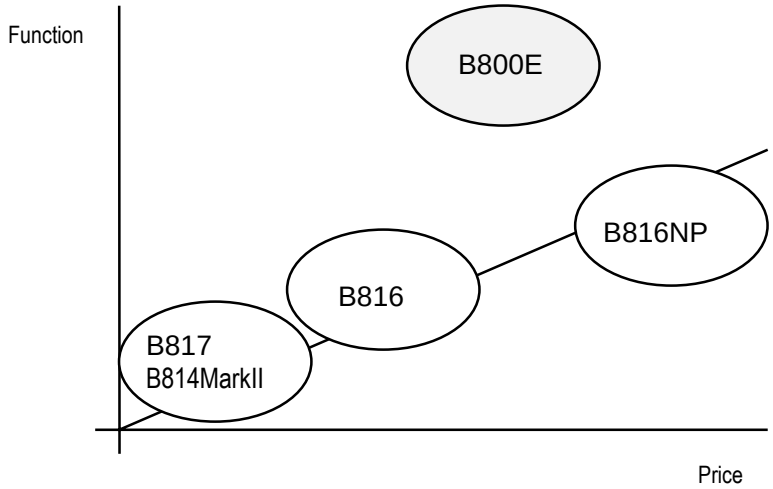
LH4-B800E Electronic lockstitch button holer

B800E Market Position



Target Users

Woven articles such as shirts, blouses, work clothes and ladies' attire

Knitted articles such as underwear, sweaters, cardigans and jerseys

Product concept

An electronic lockstitch button holer which is easy to operate and can be used with confidence.

An electronic lockstitch button holer that gives perfect finishes.

An electronic lockstitch button holer that lets you sew many different designs and encourages creativity.

Points of appeal for the customer

(1) Wide variety of sewing patterns

- Patterns can be easily selected from the operation panel from a total of 21 standard patterns. **B800E ONLY**
- Changing pattern sizes, even for detailed areas, is possible using the operation panel.
- Up to 90 extra patterns can also be stored in memory.
- The BAS-PC/300 makes it possible to additionally program up to 9 patterns of any type. (custom made patterns)
  It also lets you sew the linings of jackets, and greatly increases the range of available designs. **B800E ONLY**
- Up to 9 patterns can be recorded in cycle programs. This greatly improves work efficiency. (Only one type of cycle program can be used.)
  Example of cycle program: If buttonhole size changes → When sewing front buttonholes and sleeve buttonholes in items such as blouses **WOVEN**
  If including a bar tacking step → When sewing buttonholes and bar tacking in knitted articles **KNIT**

B800E : 21patterns

		Front tack				
		Rectangle	Radial	Round	Taper tack	Tack
Rear tack	Rec-tangle	Rectangle	Rectangle-radial	Rectangle-round	Rectangle-taper tack	Rectangle-tack
	Radial	Radial-rectangle	Radial	Radial-round	Radial-taper tack	Radial-tack
	Round	Round-rectangle	Round-radial	Round	Round-taper tack	Round-tack
	Eyelet	Eyelet-rectangle	Eyelet-radial	Eyelet-round	Eyelet-taper tack	Eyelet-tack

Bar tack	

JUKI(electronic) : 6 patterns

Rectangle
Round
Round-rectangle
Radial-rectangle
Radial
Radial-taper tack

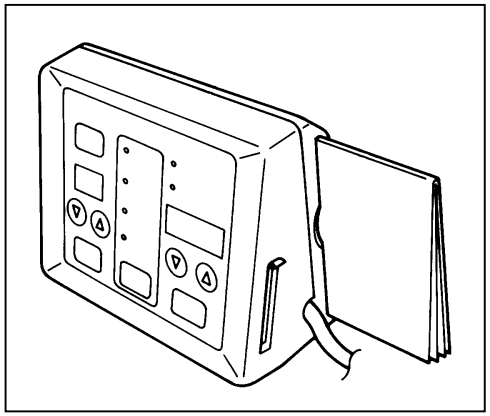
(2) Simple and easy-to-use operation panel

- This operation panel is simple in design and easy to use, and includes a careful selection of functions which are necessary for normal sewing.
- There is a program memo pocket provided on the back of the panel. **B800E ONLY**

  This lets the operator keep necessary information such as a parameter table, program notes and an error code table on hand for easy reference.

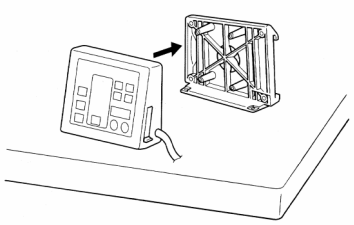
Independent operation panel allows
input and change of sewing pattern with ease.

Program memos can be stored in the back of operation panel. **B800E ONLY**

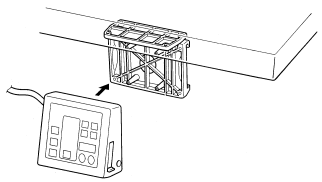


Two ways to install the operation panel

On the table

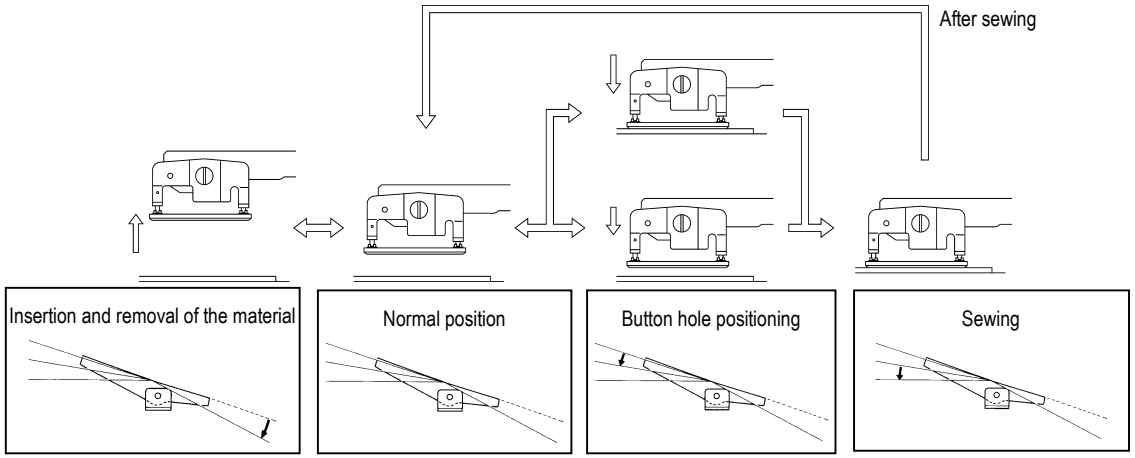


Under the table

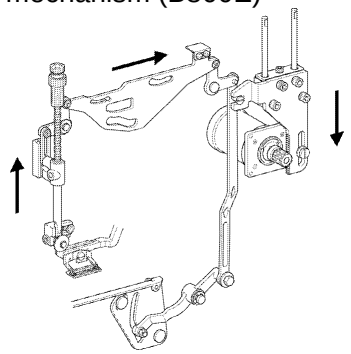


(3) Adjustable presser foot lifter height

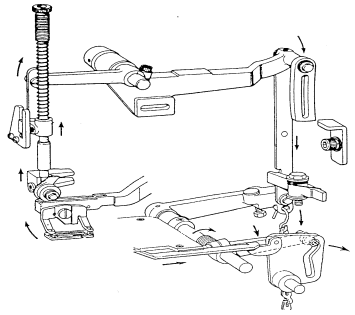
- The presser foot lifter is driven by a pulse motor, so that the height can be adjusted as desired (standard function) for when the pedal is at the neutral position and when it is depressed forward (two stages) and backward.
  This makes insertion and removal of the material easier and reduces working fatigue. **B800E ONLY**
- The presser foot rises only by the height necessary, so that the time needed for it to rise and drop can be shortened. **B800E ONLY**
- Improved button hole positioning precision, and positioning operations have been made easier. (Soft presser foot)



Presser foot lifter mechanism (B800E)



Presser foot lifter mechanism (mechanical button holer)



(4) Quick and accurate cutter operation

- The cutter vertical movement is driven by a double position solenoid, so that the material is cut more accurately. **B800E ONLY**
- There is no need for adjustments such as replacing cutter cams when changing the number of stitches.
- A special needle plate with the elasticity of rubber can be used with hard-to-cut and stretch materials. (Option)
  This prevents the cutter from getting stuck and not returning, and ensures cleaner cutting. **B800E ONLY** **KNIT**
- The cutter operates without slowing down the sewing machine, and the cutter response time is also fast, so that cycle time is reduced and productivity is increased by about 20%. (Compared to B816)
- A plastic plate durability is improved when a flat cutter (option) is used.

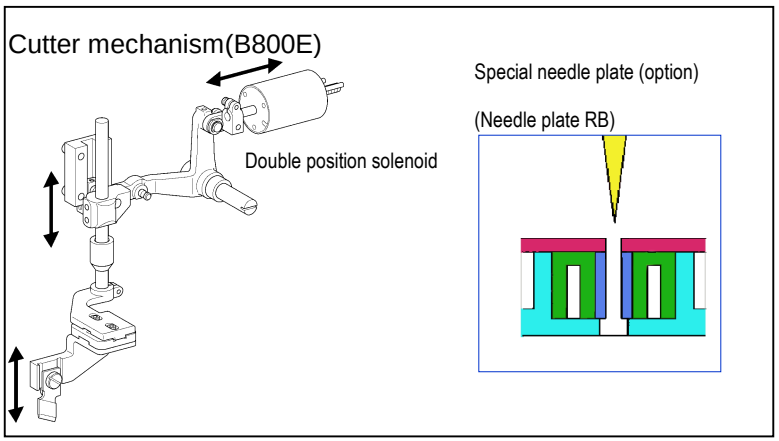
Driving by electromagnetic solenoid makes response time shorter.

B800E	B816	B816NP
35 msec	50 msec	62 msec

Cycle time : 20 % higher in productivity than B816.

	B800E	B816NP	B816	B814 Mk II	JUKI(mechan)
3,600 rpm	2.7 sec	2.77 sec	3.37 sec	3.25 sec	3.49 sec
4,000 rpm	2.55 sec	2.61 sec	3.20 sec	-	3.27 sec

Cutter mechanism(B800E)



Cutter performance

		B800E			JUKI (electronic)
Cloth	Ply	B800E New cutter blade*	B816 Cutter blade	Special nee-dle plate (opt.)	JUKI Genuine blade
Broad	2	O	O	-	O
Serge	2	O	O	-	O
Leather	2	O	O	-	O
Denim	2 4 6	O O O	O O X	-	O O X
Knit	2	O	O	-	X**
Knit, white	2	O	X**	-	X
Knit, brown	2	O	O	-	O
Knit, white Medium thick	2	X	X	O	X

*The sharp cutter blade has been newly introdeced.

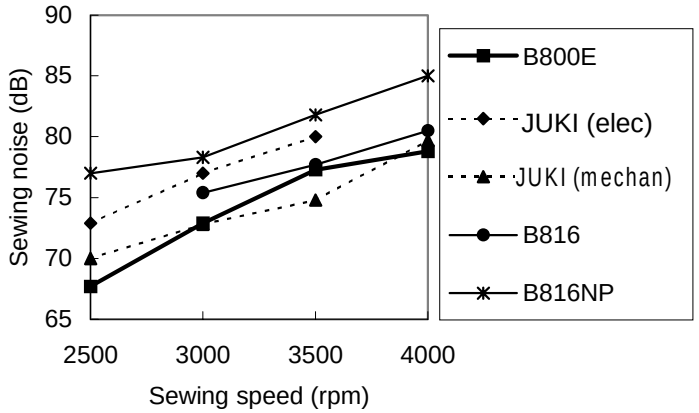
**Material cannot be cut, cutter gets stuck in the material and does not return.

(5) Quiet operating environment

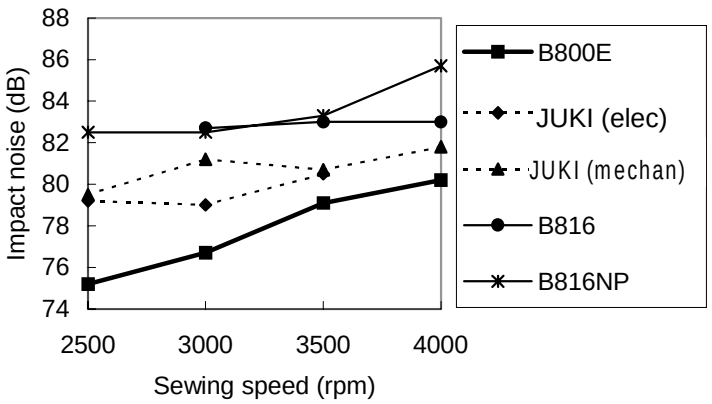
• Adoption of a clutchless mechanism ensures quieter operating environment and increased durability.

Acoustic noise

Sewing noise



Impact noise (cutter, clutch)



(6) Perfect sewing quality

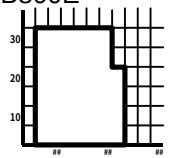
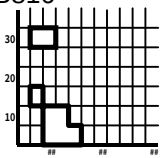
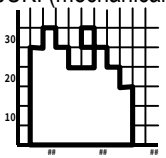
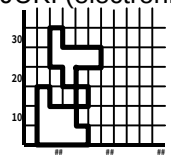
(6-1) Wide sewing range
(6-2) Short lower thread trailing length
(6-3) Better stitches at the sewing start
(6-4) Clean finish with no upper thread trailing length
(6-5) Stable zigzag seams even at high speed
(6-6) No uncut hole length at front backtacking
(6-7) Adjustment of zigzag width balance is possible
(6-8) Under lay
(6-9) 2-cycle sewing prevents seam unravelling
(6-10) Purl stitch / Whip stitch
(6-11) Accurate thread trimming

(6-1) Wide sewing range

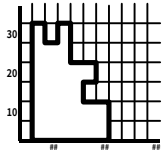
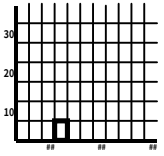
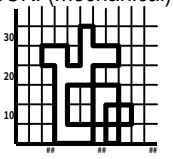
• Newly-developed thread take-up, rotary hook and thread path mechanisms have been adopted as part of the change to an electronic mechanism. This provides ideal balance, so that attractive buttonholes can be sewn in a variety of different materials under a variety of conditions.

Increase in range of sewing ability

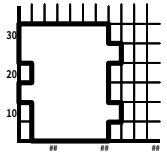
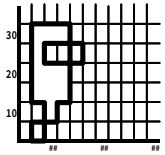
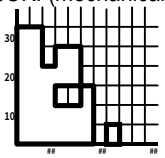
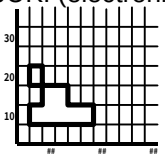
Purl stitch 3,600 rpm Spun #60

B800E	B816	JUKI (mechanical)	JUKI (electronic)
			

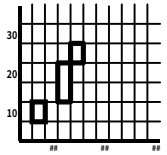
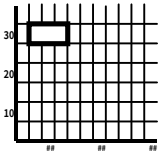
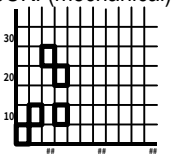
Purl stitch 4,000 rpm Spun #60

B800E	B816	JUKI (mechanical)	JUKI (electronic)
			4,000 rpm impossible

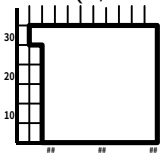
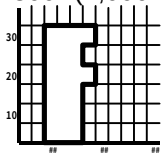
Purl stitch 3,600 rpm Polyester #50

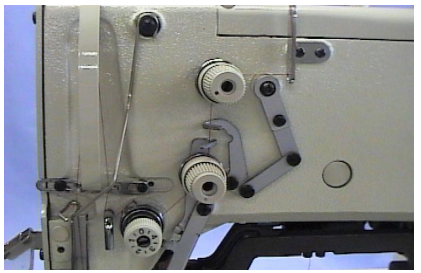
B800E	B816	JUKI (mechanical)	JUKI (electronic)
			

Purl stitch 4,000 rpm Polyester #50

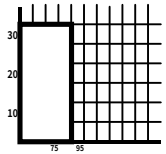
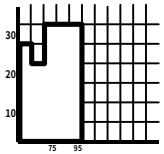
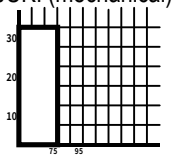
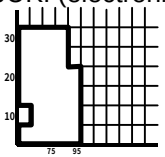
B800E	B816	JUKI (mechanical)	JUKI (electronic)
			4,000 rpm impossible

Purl stitch Cotton #60

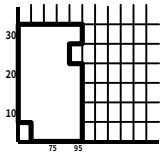
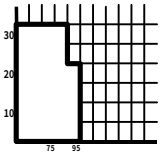
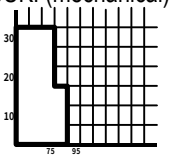
B800E(3,600 rpm)	B800E(4,000 rpm)
	



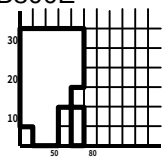
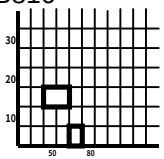
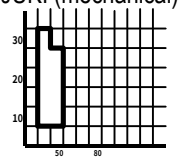
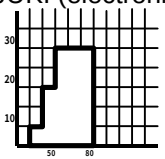
Whip stitch 3,600 rpm Spun #60

B800E	B816	JUKI (mechanical)	JUKI (electronic)
			

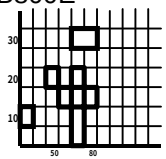
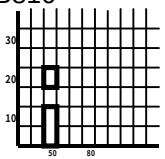
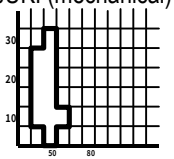
Whip stitch 4,000 rpm Spun #60

B800E	B816	JUKI (mechanical)	JUKI (electronic)
			4,000 rpm impossible

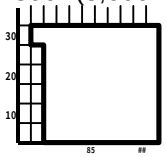
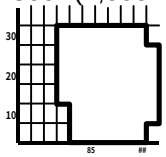
Whip stitch 3,600 rpm Polyester #50

B800E	B816	JUKI (mechanical)	JUKI (electronic)
			

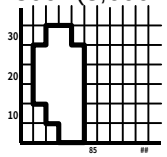
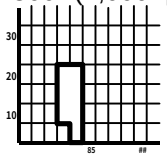
Whip stitch 4,000 rpm Polyester #50

B800E	B816	JUKI (mechanical)	JUKI (electronic)
			4,000 rpm impossible

Whip stitch Cotton #60

B800E(3,600 rpm)	B800E(4,000 rpm)
	

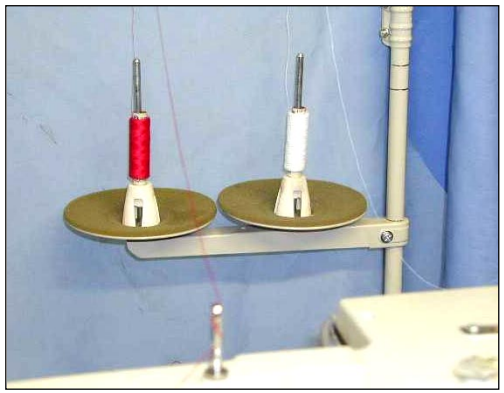
Knitted material / Whip stitch Spun #60

B800E(3,600 rpm)	B800E(4,000 rpm)
	

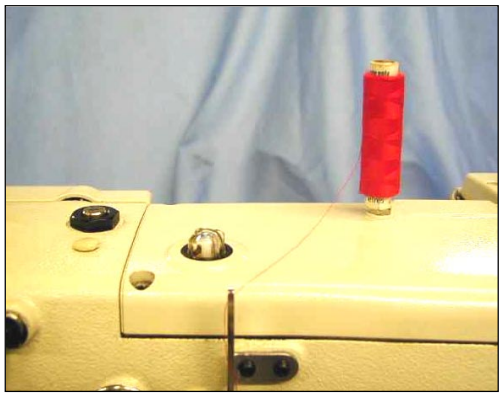
• Sewing performance has been improved even for coarse threads which have caused problems up until now (Brother data).

• For example, for threads (such as India thread) which are stiff when pulled out from the top of the upper thread spool, the upper thread spool has been moved to the upper cover to widen the sewing range as shown below.

B800E (conventional sewing stand)

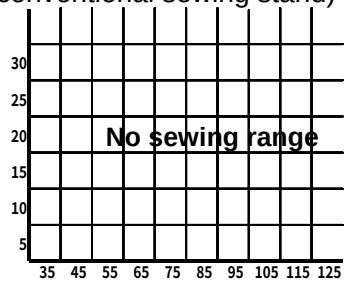


B800E (upper thread spool moved to upper cover)

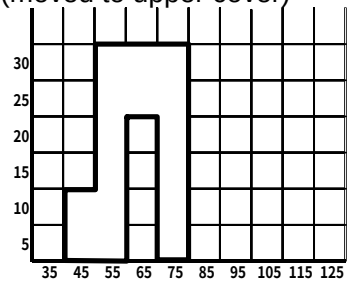


Whip stitch 3,600 rpm

(conventional sewing stand)

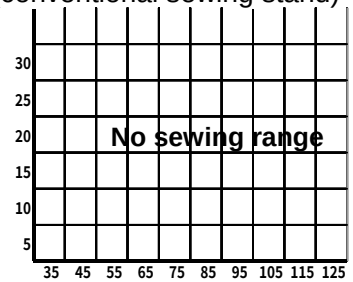


(moved to upper cover)

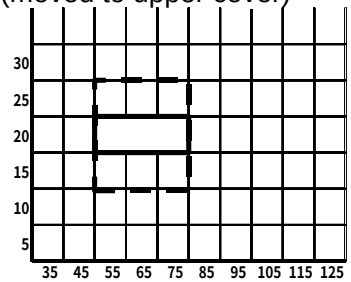


Whip stitch 4,000 rpm

(conventional sewing stand)



(moved to upper cover)

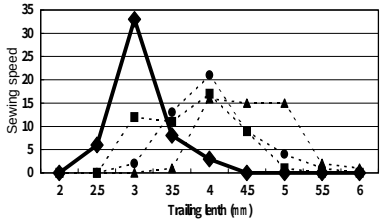


(6-2) Short lower thread trailing length

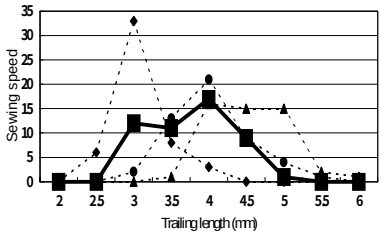
- The newly-designed lower thread trimming mechanism gives a shorter lower thread trailing length when the thread is trimmed.
- This produces a more attractive underside and increases seam quality.

Lower thread trailing length variation

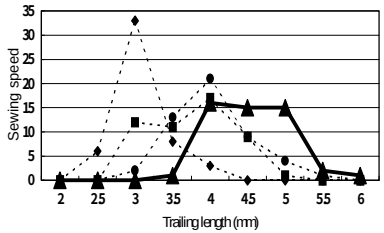
B800E→3.1±0.53 mm



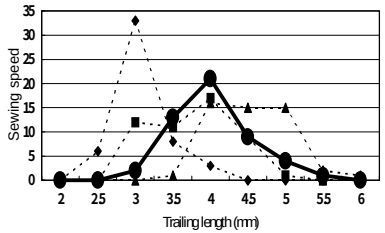
B816→3.8±0.83 mm



B814 Mark II→4.5±0.77 mm

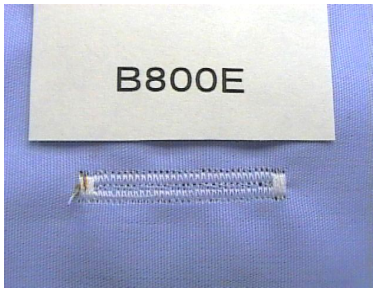


JUKI (mechanical/electronic)→4.0±0.79 mm



Lower thread trailing (underside)

B800E



B816

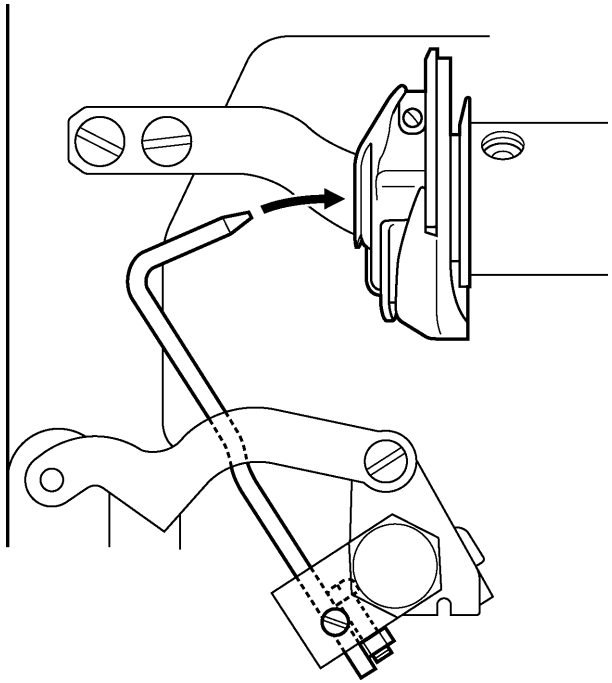
B814 Mark II

JUKI (mechanical)

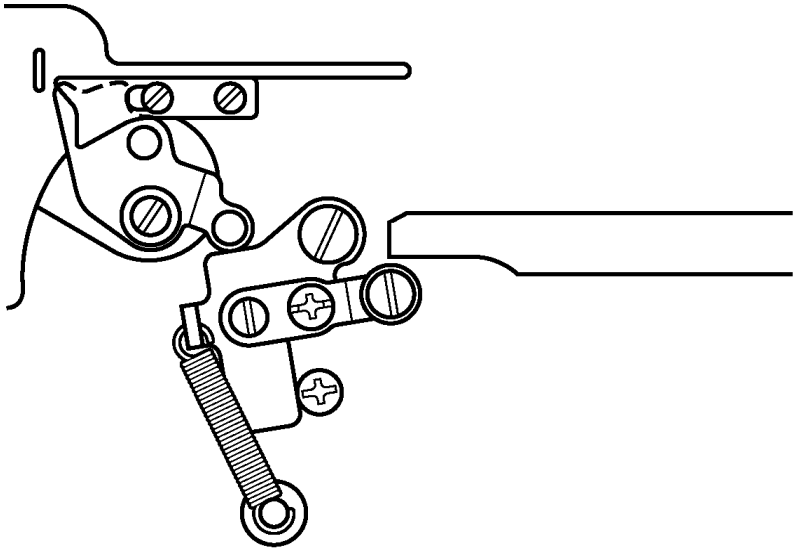
(6-3) Better stitches at the sewing start

- Adoption of a bobbin presser prevents the bobbin from spinning free when the lower thread is trimmed. This makes lower thread feeding more stable and produces better stitches at the sewing start.
- The lower thread holding device holds the lower thread at the sewing start to ensure that the thread end is sewn into the seam properly.

Bobbin presser



Lower thread holding device

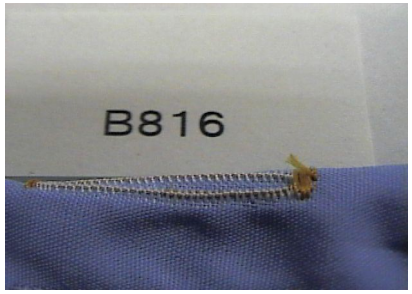
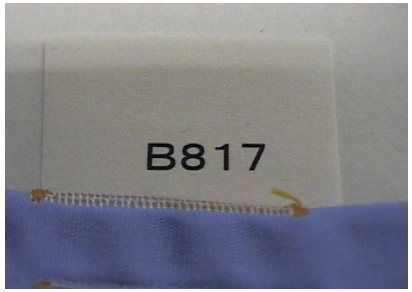


(6-4) Clean finish with no upper thread trailing length

• Attractive finishes are obtained with no upper thread trailing at the sewing end.

This ensures that a stable and consistent high-quality sewing finish is always obtained.

Seam with no upper thread trailing

B800E	B816	B814 Mark II	JUKI (mechanical)
			

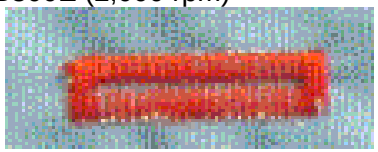
(6-5) Stable zigzag seams even at high speed

• A new needle zigzag mechanism (patent pending) reduces the effect of vibration from upper shaft rotation on the needle bar, so that stable and accurate needle zigzagging is obtained even at high speeds. Thus the needle zigzag width can be kept even to create attractive button holes.

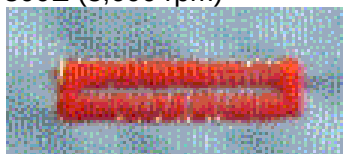
• Also, a knife is not used to trim the thread. The cutter space does not change, further making sure that the finish is attractive.

Zigzag width deviation by speed

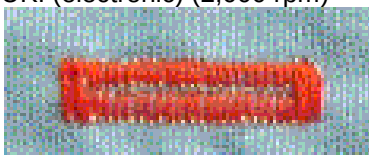
B800E (2,000 rpm)



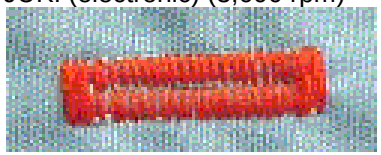
B800E (3,600 rpm)



JUKI (electronic) (2,000 rpm)



JUKI (electronic) (3,600 rpm)



Needle zigzag feed

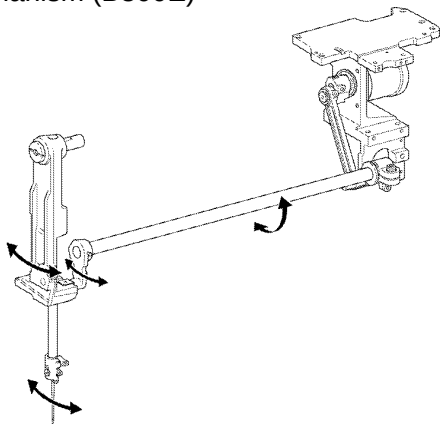
B800E (mm)

	2,000 rpm	3,600 rpm	Difference (stretching ratio)
A : L zigzag width	1.96	1.96	0(0%)
B : R zigzag width	1.98	1.98	0(0%)
C : Cutter space	0.15	0.13	0.02

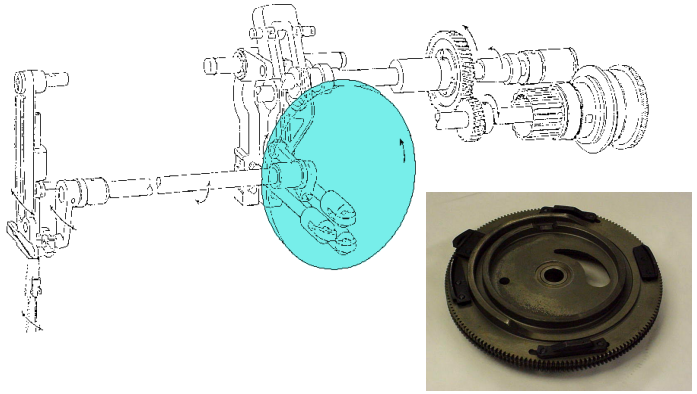
JUKI (electronic) (mm)

	2,000 rpm	3,600 rpm	Difference (stretching ratio)
A : L zigzag width	1.78	2.29	0.51(28.7%)
B : R zigzag width	1.82	2.52	0.70(38.5%)
C : Cutter space	0.13	-0.66	0.79

Zigzag mechanism (B800E)

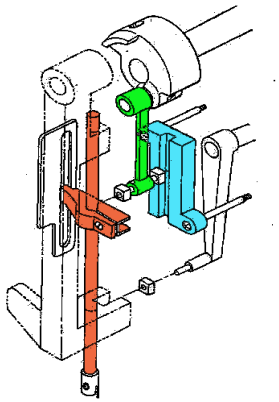


Zigzag mechanism (mechanical button holer)



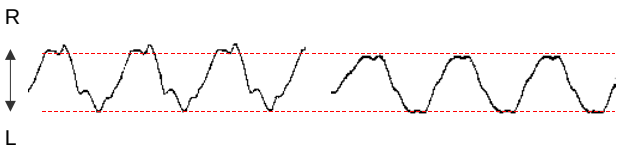
Zigzag mechanism (B800E)

A vertical guide has been provided for the needle bar crank rod.



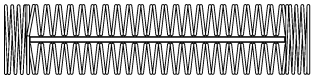
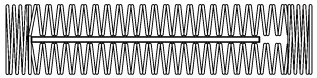
4 mm wide zigzag stitches can be sewn at 4,000 rpm.

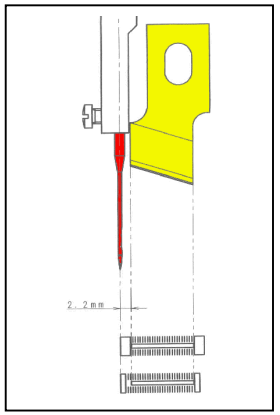
Before modification After modification



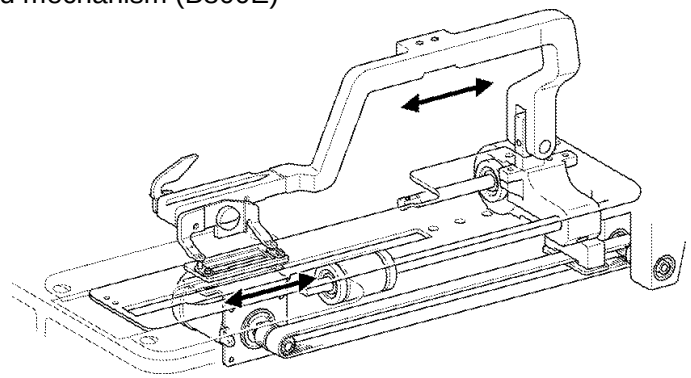
(6-6) No uncut hole length at front backtacking

- If "Feeding when cutter operating" is set, only the feed mechanism operates after sewing and the cutter moves to the specified position, so that the buttonhole can be cut right up to the front backtacking. (This setting is also possible with no feeding set.) **B800E ONLY**
- For conventional mechanical-type machines, the needle bar had to be specially processed in order to eliminate uncut parts of the buttonhole. With the B800E, if "Feeding when cutter operating" is set, the optimum position for no uncut section is calculated from the bar tack length. **B800E ONLY**
- This function is ideal for sewing fine buttonholes with high-quality designs in light materials. **WOVEN**

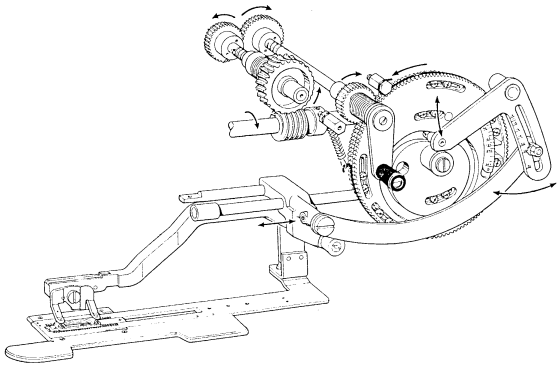
B800E (when "Feeding while cutter operating" is set)	Mechanical button holer
Sewing → Small amount of feed → Cutter 	Cutter operation coincides with end of sewing  For narrow bar tack widths, cutting right up to the seam edge is not possible.



Feed mechanism (B800E)



Feed mechanism (mechanical button holer)

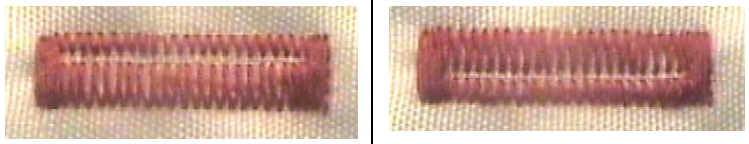


(6-7) Adjustment of zigzag width balance is possible

• The left and right stitch width ratio for buttonholes can be set on the operation panel.

This adjustment can be used to correct the appearance if the finish looks as though the left and right stitch widths are different. **B800E ONLY**

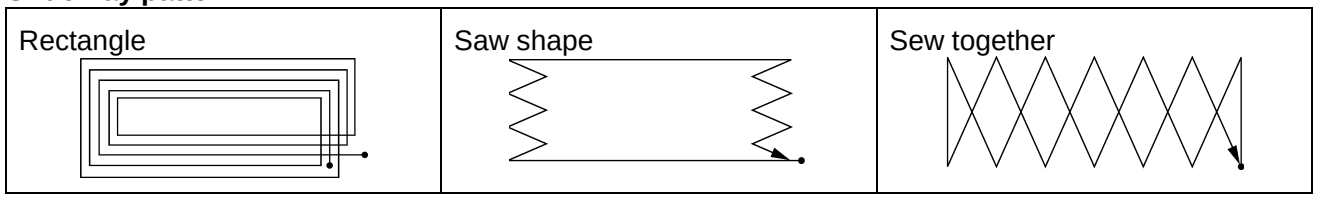
Change by zigzag width ratio



(6-8) Under lay

• This ideal for sewing stretch materials such as knitted articles. Up to three patterns can be combined and sewn together. KNIT

Under lay pattern



Rectangle

- Effective for preventing material from stretching.
- If the seam is hidden and the width seems small, sew 2--3 underlays to make the material look more voluminous.
- Because the material can be moved slightly two to five times, the seam flexibility is maintained and the buttonhole strength can also be increased.
- Underlays can be sewn several times in the same place without the seam moving. B800E ONLY

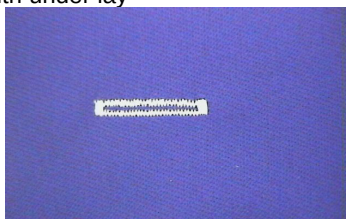
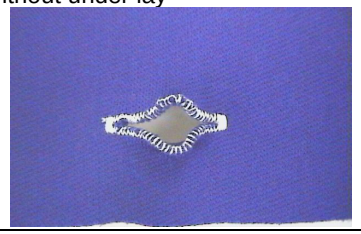
Saw shape B800E ONLY

- This is useful for preventing dimples from forming during bar tacking.
- It is also effective for strengthening the buttonholes to stop the seam from unravelling, which can often happen with materials with coarse weaves.

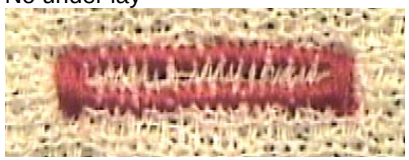
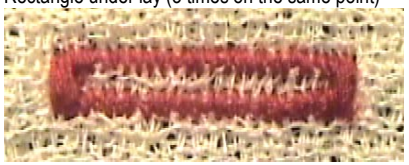
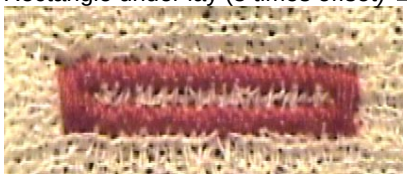
Sew together B800E ONLY

- If the cutter has operated before the seam has been formed (when the upper thread does not break when the lower thread has run out), zigzag stitches in particular may not hold properly. In such cases, the hole made by the cutter is sewn up beforehand.
- The pile of fluffy fabric is pressed down before sewing, so that the buttonhole finish looks more attractive.

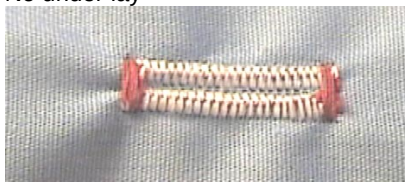
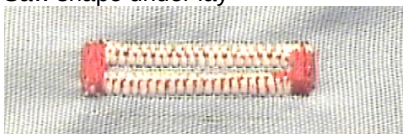
Prevent stretching by underlay beforehand

With under lay	Without under lay
	

Rectangular (making voluminous stitch)

No under lay	Rectangle under lay (3 times on the same point)	Rectangle under lay (3 times offset) B800E ONLY
		

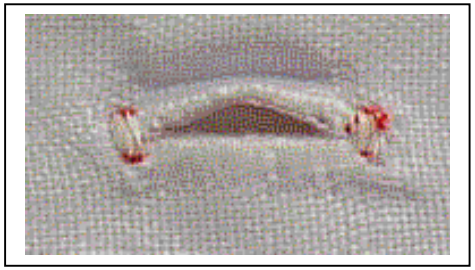
Saw shape (prevents dimples in the fabric) B800E ONLY

No under lay	Rectangle under lay	Saw shape under lay
		

Sew together (prevents fluffy fabric from being buried into the fabric) B800E ONLY

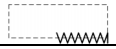
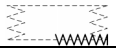
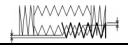
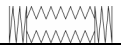
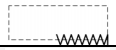
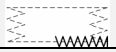
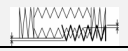
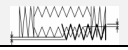
No under lay	Rectangle under lay	Sew together under lay
		

(6-9) 2-cycle sewing prevents seams unravelling



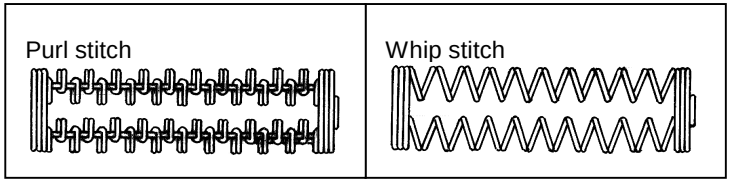
- If 2-cycle sewing is set, the seams will not unravel when force is applied to pull the buttonhole.
  This is effective in preventing the seams from unraveling in coarse materials and after repeated washing.
- By setting a 2-cycle sewing offset, you can also greatly increase strength while also reducing the stiffness of the buttonhole. **B800E ONLY**
- The effectiveness is increased if a Schmetz SUK needle (ball point) is used.

Seam unravelling

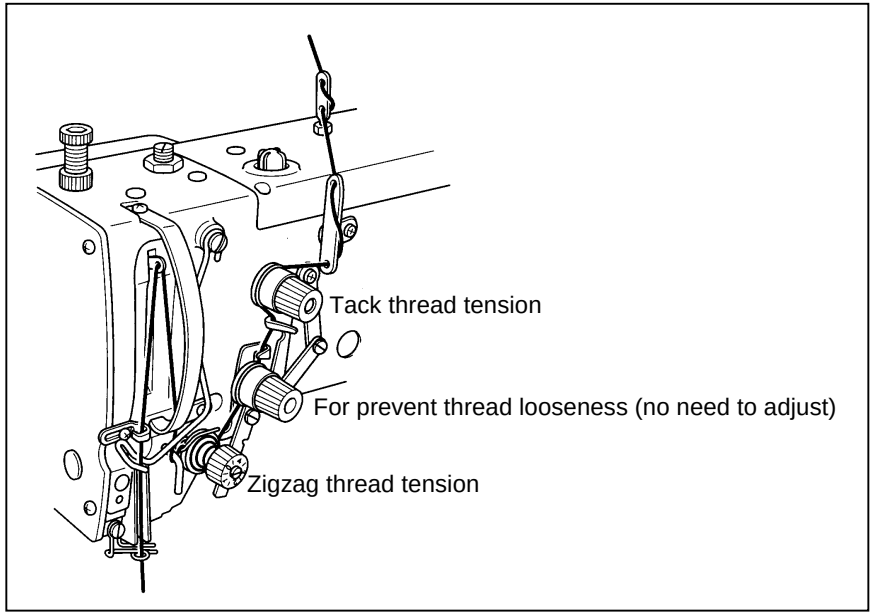
	Sewing condition	Needle	Strength up ratio
	Standard (116 stitches)	Standard needle	100%
	Rectangle under lay, 1 time (pitch 0.5 mm / 173 stitches)		107.7%
	Saw shape under lay, 1 time (pitch 0.5 mm / 1 stitch 10 saw / 188 stitches)		108.8%
	2 cycle sewing		106.2%
	2 cycle sewing, offset 0.3		108.8%
	Standard (116 stitches)	SUK needle (ball point)	103.8%
	Rectangle under lay, 1 time (pitch 0.5 mm / 173 stitches)		106.8%
	Saw shape under lay, 1 time (pitch 0.5 mm / 1 stitch 10 saw / 188 stitches)		110.3%
	2 cycle sewing		116.7%
	2 cycle sewing, offset 0.3		117.1%
	Spun #80 2 cycle sewing, offset 0.3		117.1%

(6-10) Purl stitch / Whip stitch

• The upper thread tension is controlled by a solenoid, so that changing between purl stitches and whip stitches can be done simply by selecting them on the operation panel. (It is also necessary to change the way the bobbin is threaded.)



• Fine adjustments to the upper thread tension are made using a thread tension nut in the same way as before.
The same method that operators have become used to allows the optimum thread tension to be easily obtained.

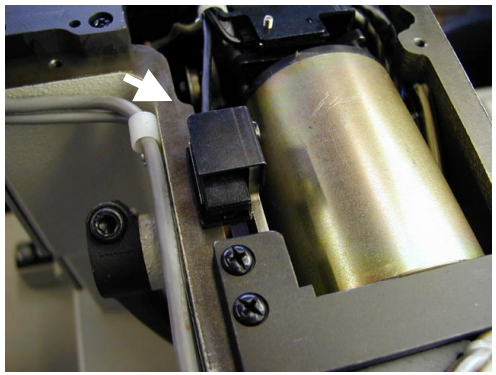
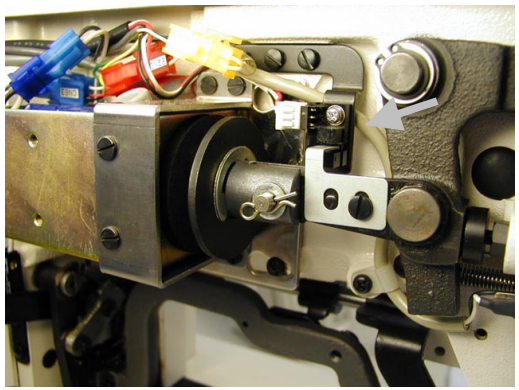


(6-11) Accurate thread trimming B800E ONLY

• The lower thread trimming mechanism operates in conjunction with the presser foot lifter mechanism, and is driven by a pulse motor. As a result, the thread trimmer driving speed can also be changed at the operation panel, so that the thread can be accurately trimmed regardless of the type of thread being used.

(7) Reliable home position sensor B800E ONLY

• Because a proximity sensor is used, mis-operations due to dust or oil have been totally eliminated. In addition, the sensor is also maintenance-free.

B800E	JUKI Electronic
	

(8) Oil contamination prevented

• The new design also prevents contamination from oil leaks from occurring.

Comparison chart of mechanical button holers

	Reference	**LH4-B800E**	LH4-B816	LH4-B816NP	JUKI mechanical (790)	JUKI mechanical (790-1)
Max. sewing speed		**4,000 rpm**	4,000 rpm	4,000 rpm	4,000 rpm	4,000 rpm
Pattern change	(1)	**Panel switch**	Cam change	Cam change	Cam change	Cam change
Cutter length		**6.0 - 32 mm**	9.5 - 32 mm	9.5 - 32 mm	6.35 - 38 mm	6.35 - 38 mm
Max. stitch width		**6 mm**	6 mm	6 mm	5 mm	5 mm
Presser lift	(3)	**Yes (motor)**	No	Yes (Pneumatic)	No	Yes (Solenoid)
W/o clutch		**Yes**	No	Yes	No	Yes
Speed control		**Yes**	No	Yes	No	Yes
Hook arrangement		**Normal**	Reverse	Reverse	Normal	Normal
Lower thread holding device	(6-3)	**Yes**	No	No	Yes	Yes
Bobbin presser	(6-3)	**Yes**	No	No	Yes	Yes
Cutter drive	(4)	**Solenoid**	Mechanical	Pneumatic	Mechanical	Pneumatic

Comparison chart of electronic button holers

Main function

	Reference	**LH4-B800E**	JUKI (electronic)
Max. sewing speed		**4,000 rpm**	3,600 rpm
Pattern change		**Panel switch**	Panel switch
Length of knife		**6.0– 32 mm**	6.4 - 31.8 mm
Max. stitch width		**6 mm**	5 mm
Height of presser foot	(3)	**13 mm (adjustable by panel switch)**	12 mm
Presser foot mechanism	(3)	**Pulse motor**	-SA 2 pedal -SB Solenoid -SC Pneumatic
Feed method	(6-6)	**Pulse motor (intermittent)**	Pulse motor (intermittent)
Zigzag mechanism	(6-5)	**Pulse motor**	2 pulse motors (change width, base line)
Thread tension mechanism	(6-10)	**Tension spring (conventional)** • The active tension can be set as a numeric value in a program, but it is cumbersome. • Active tension might be considered a useful function when the stitch tightness varies for left and right zigzags and front and rear bar tacking, but because a control knob (option) is used, it is cumbersome to continually sew, change the setting and then sew again to get the correct tension. In addition, even if the value is stored in memory, it becomes useless if the material is changed. Plus, it is more difficult to use than the conventional method.	Electronic control (active tension)
Minimum zigzag width		**0.1 mm**	0.05 mm

	Reference	**LH4-B800E**	JUKI (electronic)
		• It might be thought that there would be a disadvantage with cutter space for cutter shirts, but monitoring by cutter shirt manufacturers indicates that there is no problem, so that precision can be 0.1 mm with no problem.	
Minimum feeding length		**0.05 mm**	0.05 mm
Knife mechanism	(4)	**Double position solenoid**	-SA, -SB Solenoid -SC Pneumatic
Lower thread holding device	(6-3)	**Yes**	Yes
Bobbin presser device	(6-3)	**Yes**	Yes
Standard pattern	(1)	**21**	6
Memory pattern	(1)	**90**	89+10 (Not changeable)
Under lay	(6-8)	**Yes**	Yes
2 cycle sewing	(6-9)	**Yes**	Yes
Multi-working knife		**Yes**	Yes
Threading function key (at right)		**No (stops at right on breakage and emergency stop)** • Threading is basically done when the power is turned off except during an emergency stop and during thread breakages, so this function is in response to users' requests.	Yes
Custom made pattern	(1)	**Programmed by BAS-PC/300**	Not user programmable
Shape of arm		**Adopted to indexer**	Not adopted to indexer
Head motor		**AC servo motor**	DD, AC servo motor

Detailed function

		Reference	LH4-B800E	JUKI (electronic)
Zigzag width change in right, left when out of balance		(6-7)	**Change by zigzag width ratio**	Not changeable
Under lay		(6-8)	**Sew together, Saw shape, Rectangle**	Rectangle only
No uncut hole length		(6-6)	**Possible**	Impossible to cope with
Different position , 2 cycle sewing			**Impossible**	Set by operation panel
Radial shape reinforce			**Impossible**	Set by operation panel
Left / Right zigzag part independent setting (when stitch balance is not proper at right and left zigzag stitch part)			**Impossible** • The tension setting is the same as for previous button holers, eliminating quality claims for problems such as different tensions at left and right for zigzags and unbalanced tension in front and rear bar tacking.	Set by operation panel (active tension)
Presser foot height adjustment	Highest position	(3)	**Set by panel**	Solenoid stroke adjustment requires releasing the nut（-SB）
	Neutral position	(3)	**Set by panel**	Impossible to set（-SB）
	Soft press	(3)	**Set by panel**	Impossible to set（-SB）
Presser foot upward speed			**Set by panel (9 steps)**	Set by panel (19 steps)（-SB）
Presser foot downward speed			**Set by panel (9 steps)**	Impossible to set（-SB）
Presser foot stand by at rising position			**Continuous**	Goes down after 1 minute past（-SB）
Thread breakage detecting			• The different systems have their own merits and demerits, so that performance is at about the same level as the JUKI electronic method.	
	Dead band		**Disabled for initial 15 stitches, 5 intermediate stitches and tacking part.**	Disabled for initial 6, 7 stitches and 3 intermediate stitches. Tacking part also can be detected.

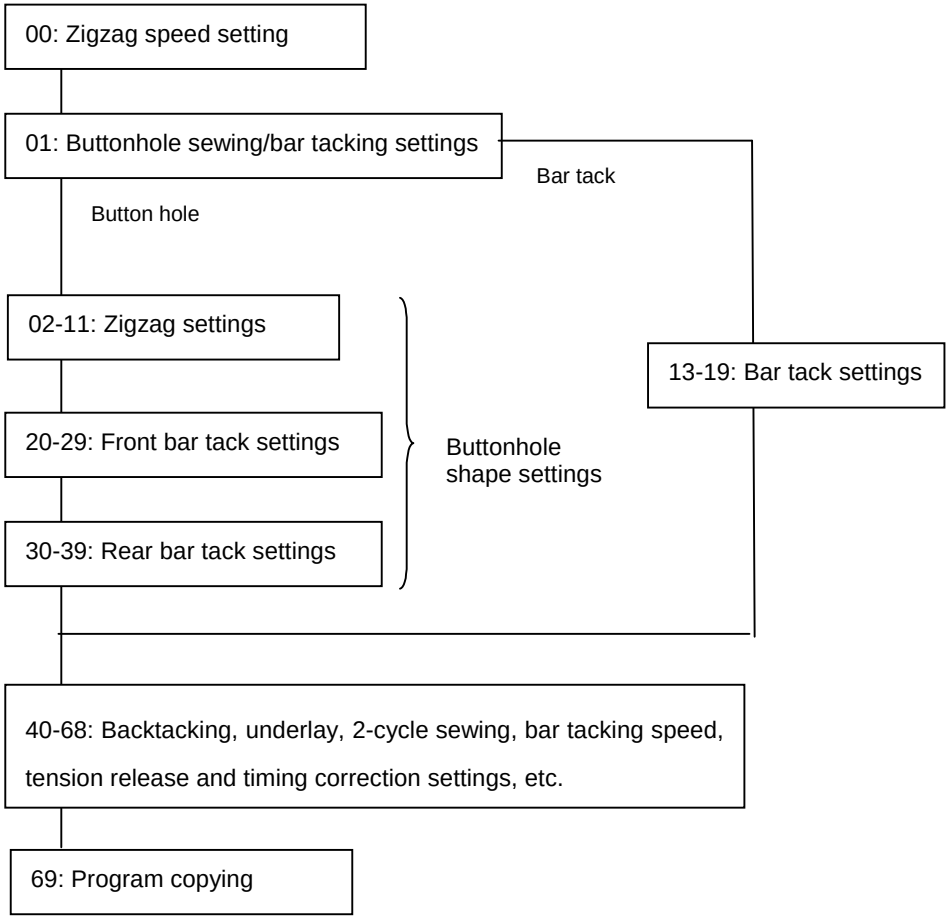
		Reference	**LH4-B800E**	JUKI (electronic)
	For low tension of upper thread		**Detection possible at spring tension 10 g, thread tension 40 g.**	Detection possible at the set value of “15” in tacking part, but depends on tension spring setting.
	At high spring tension		**Possible to detect**	If spring tension is over 20g, it results in misdetection.
	For thread jams around thread take-up		**Possible to detect**	Possible to detect
	Detection of no lower thread		**Impossible**	Impossible
Sensor		(7)	**Adoption of proximity sensor for all of the home position sensors, so they are not affected by oil and dust.**	As optical sensors are use in 2 pulse motors, upper shaft and starting pedal, they are affected by oil and dust.
Upper shaft pulley			**Pulley can be turned by hand. Manual mode is provided for turning pulley by hand.**	Unless machine is tilted, pulley cannnot be turned by hand. There is no manual mode.
Belt cover			**Machine cannot be tilted without removing cover** The JUKI electronic method lets you tilt back the machine head without removing the belt cover, but the machine pulley cannot be rotated by hand unless the head is tilted back, so there are merits and demerits. In addition, the need to tilt back the machine head is probably relatively small.	Machine can be tilted without removing the cover.

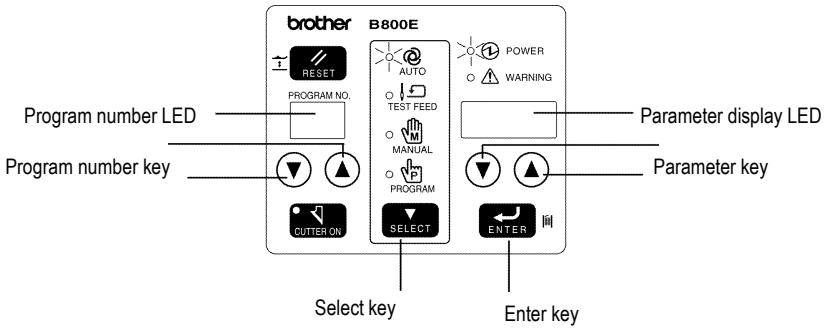
	Reference	**LH4-B800E**	JUKI (electronic)
Threading		**Stops at right side at the time of emergency stop and thread breakage. Cannot stop at right when power is on. When power is off, needle bar can be pushed to right by finger.**	Stops at right side at the time of emergency stop and thread breakage. Can stop at right by threading key. When power is off, needle bar cannot be pushed to right or left by finger.
Upper and lower thread tension		**Upper and lower thread tension can be measured as before.**	Upper thread tension cannot be measured. Lower thread tension can be measured provided thread is taken out from needle plate after tilting the machine and rotating lower shaft.
Oil leakage	(8)	**New design structure means oil leakage seldom occurs.**	Machine is based on the old model LBH-770.

Using B800E

Parameter configuration

- No. 00-69: Can be memorized independently for each program.
- Items for which setting is unnecessary can be automatically skipped.
- Depending on setting conditions, it may not be possible to set values within certain setting ranges.





<Parameter switch setting method>

(1) Press the select key to change to (auto/test feed/manual) mode. Use the program number key to select the program number to be programmed. Then, press the enter key.

(2) Press the select key to change to program mode.
The parameter numbers corresponding to the program number will be displayed in the program number LED. The parameter number setting will be displayed in the parameter display LED.

(3) Use the program number key to select the parameter to be changed.

(4) Use the parameter key to change the parameter setting.
The parameter setting will flash while it is being changed.

(5) Use the enter key to accept the changed setting.
The parameter setting will stop flashing.

(6) Press the select key to change to automatic mode.

Parameter switch

No.	Setting items	Setting range	Unit	Default
00	Sewing speed (zigzag part)	1,000 – 4,000rpm	100	3,600
01	Button hole / Bar tack	0 : Button hole (free) 1 : Button hole (rectangle) 2 : Button hole (radial) 3 : Button hole (round) 4 : Bar tack		1
02	Length of knife	6.0 – 32.0mm	0.1	13.0
03	Zigzag stitch length (multi-working knife)	OFF : Single working knife 6.0 – 35.0mm	0.1	OFF
04	Zigzag pitch	0.20 – 2.00mm	0.05	0.35
05	Zigzag width	1.0 – 3.0mm	0.1	1.5
06	Knife X space	-0.4 – 1.0mm	0.1	0.4
07	Knife Y space	0.00 – 2.00mm	0.05	1.00
08	Knife X position alignment	-0.5 – 0.5mm	0.1	0.0
09	Knife Y position alignment	-0.8 – 0.8mm	0.1	0.0
10	Zigzag width ratio (at left)	0.30 – 0.70	0.05	0.50
11	Stitch type (whip / purl)	0 : Whip 1 : Zigzag purl 2 : Zigzag, rear tack purl 3 : Zigzag, front tack purl 4：Purl		1
13	Bar tack length	7.0 – 40.0mm	0.1	13.0
14	Bar tack pitch	0.2 – 2.0mm	0.1	0.8
15	Bar tack width	1.5 – 6.0mm	0.1	2.0
16	Feed speed	1,000 – 3,000rpm	100	2,000
17	Feed length	3.0 – 32.0mm	0.1	11.0

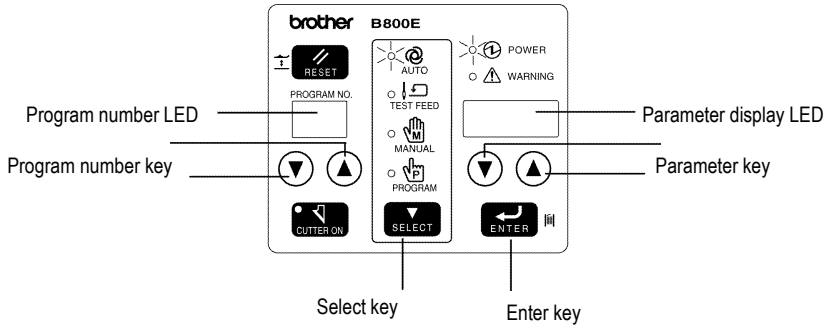
No.	Setting items	Setting range	Unit	Default
18	Feed pitch	1.0 – 5.0mm	0.1	2.0
19	Feed width	0.5 – 3.0mm	0.1	1.0
20	Front tack pattern	0 : Rectangle 1 : Radial 2 : Round 3 : Tack 4 : Taper tack	1	0
21	Front tack length (except taper tack)	0.5 – 5.0mm	0.1	1.0
22	Front tack pitch (except radial)	0.10 – 1.00mm	0.05	0.30
23	Front tack width correction (except radial)	-2.0 - +2.0mm	0.1	0.0
24	No. of front tack stitch (radial)	5 – 11 stitches	2	7
25	Taper tack length (taper tack)	1.0 – 5.0mm	0.1	3.0
30	Rear tack pattern	0 : Rectangle 1 : Radial 2 : Round 3 : Eyelet	1	0
31	Rear tack length (except eyelet)	0.5 – 5.0mm	0.1	1.0
32	Rear tack pitch (except radial, eyelet)	0.10 – 1.00mm	0.05	0.30
33	Rear tack width correction (except radial, eyelet)	-2.0 - +2.0mm	0.1	0.0
34	No. of rear tack stitch (radial, eyelet)	5 – 11 stitches	2	7
35	Eyelet buttonhole radius (eyelet type only)	1.0 – 3.0mm	0.1	2.0
40	Start backtack	2 – 6 stitches	2	2
41	Start backtack width	0.5 – 3.0mm	0.1	0.5
42	Start backtack pitch	0.10 – 0.80mm	0.05	0.30
43	End backtack	1 – 6 stitches	1	4
44	Feeding when cutter operates	OFF : Not fed ON : Fed		OFF
45	No. of underlays sewn together	0 - 1	1	0

No.	Setting items	Setting range	Unit	Default
46	No. of saw-shape underlays	0 - 1	1	0
47	No. of rectangle underlays	0 - 5	1	0
48	Underlay speed	1,000 – 3,000rpm	100	2,000
49	Underlay feed pitch	0.5 – 6.0mm	0.1	2.0
50	Underlay offset	0.3 – 1.0mm	0.1	0.8
51	Underlay sewing start length	2.0 – 10.0mm	0.1	4.0
52	Underlay sewing start pitch	0.2 – 2.0mm	0.1	1.0
53	Underlay bar tack X stitch no. (only for saw-shaped underlays)	2 – 14 stitches	2	4
54	Underlay bar tack Y stitch no. (only for saw-shaped underlays)	1 – 5 stitches	1	1
55	2-cycle sewing	OFF : Not 2 cycle sewing ON : 2 cycle sewing		OFF
56	No. of bar tacks sewn for 2-cycle sewing	1 - 2	1	2
57	First offset for 2-cycle sewing	0.0 – 0.8mm	0.1	0.3
59	Slow start stitches	0 – 4 stitches	1	1
60	Slow speed	500 – 1,500rpm	100	800
61	Rear tack speed	1,000 – 4,000rpm	100	4,000
62	Front tack speed	1,000 – 4,000rpm	100	4,000
63	Sewing start tension apply timing	-4 – 6 stitches	1	0
64	Rear bar tack tension release timing	-4 – 4 stitches	1	0
65	Rear bar tack tension apply timing	-4 – 4 stitches	1	0
66	Front bar tack tension release timing	-4 – 4 stitches	1	0
67	Sewing end tension apply timing	-5 – 0 stitches	1	0
69	Program copy	OFF, 1 - 90 (Specify copy source)	1	OFF

Memory switch

• No. 00-12: Effective for all programs

No.	Setting items	Setting range	Unit	Default
00.	Cutter power	1 : Thin 2 : Normal 3 : Medium 4 : Heavy	1	2
01.	Cutter return time	6 – 34 ms	2	34
02.	Presser foot lift speed	-4 - 4	1	0
03.	Presser foot lower speed	-4 - 4	1	0
04.	Presser foot height at treadle back position	1 - 13mm	1	13
05.	Presser foot height at neutral position	1 - 13mm	1	10
06.	Soft press height	OFF 0.1 – 8.0mm	0.1	OFF
07.	Threshold value correction when presser foot is lifted	-10 - 10	1	0
08.	Threshold value correction when presser foot is lowered	-10 - 10	1	0
09.	Threshold value correction at start	-10 - 10	1	0
10.	Extension time for continuous sewing	OFF 100 – 1,000ms	100	OFF
11.	Home position return cycle	OFF, 1 - 10	1	1
12.	Feed timing	-10 - 10 (x 0.24 °)	1	0



<Changing functions using memory switches>

(1) Press the select key to change to program mode.

(2) Press the program number UP key and the enter key at the same time.
The memory switch number 00. will be displayed in the program number LED. The memory switch setting will be displayed in the parameter display LED.

(3) Use the program number key to select the memory switch to be changed.
The memory switch setting will be displayed in the parameter display LED.

(4) Use the parameter key to change the memory switch setting.
The memory switch setting will flash while it is being changed.

(5) Use the enter key to accept the changed setting.
The memory switch setting will stop flashing. Press the select key to change to automatic mode.

Panel DIP switch

• Changes to panel DIP switch settings are invalid until the power is turned off and back on again.

Panel DIP SW-A

No.		Setting item	Default
1	ON	Presser foot remains lowered after sewing is complete (lifts when pedal is depressed)	OFF
	OFF	Presser foot lifts after sewing is complete	
2	ON		OFF
	OFF		
3	ON	Emergency stop using presser foot lifter switch enabled during automatic sewing	OFF
	OFF	Emergency stop using presser foot lifter switch disabled during automatic sewing	
4	ON	Display setting during automatic mode = lower thread counter	OFF
	OFF	Display setting during automatic mode = production counter	
5	ON	2-cycle sewing ON	OFF
	OFF	2-cycle sewing OFF	
6	ON		OFF
	OFF		
7	ON	Upper thread breakage detection disabled	OFF
	OFF	Upper thread breakage detection enabled	
8	ON	Programs disabled	OFF
	OFF	Programs enabled	

Panel DIP SW-B

No.		Setting item	Default
1	ON		OFF
	OFF		
2	ON		OFF
	OFF		
3	ON		OFF
	OFF		
4	ON		OFF
	OFF		
5	ON		OFF
	OFF		
6	ON	Needle hole size : 5.4 mm (Max. zigzag width : 4.0 mm)	OFF
	OFF	Needle hole size : 7.3 mm (Max. zigzag width : 6.0 mm)	
7, 8	ON,ON	Work clamp size : 7.3 x 47 mm (6.0 x 40 mm)	OFF, OFF
	ON,OFF	Work clamp size : 6.8 x 47 mm (5.4 x 40 mm)	
	OFF,ON	Work clamp size : 5.4 x 24.5 mm (4.0 x 20 mm)	
	OFF,OFF	Work clamp size : 5.4 x 36 mm (4.0 x 32 mm)	

DIP switch inside the control box

• Changes to panel DIP switch settings are invalid until the power is turned off and back on again.

Control box DIP SW1 (Outside)

No.		Setting item	Default
1	ON		OFF
	OFF		
2	ON		OFF
	OFF		
3	ON		OFF
	OFF		
4	ON		OFF
	OFF		
5	ON		OFF
	OFF		
6	ON		OFF
	OFF		
7	ON		OFF
	OFF		
8	ON	Needle feed motor excitation turned off during emergency stop and thread breakage	OFF
	OFF	Needle feed motor excitation not turned off during emergency stop and thread breakage	

Control box DIP SW2 (Inside)

No.		Setting item	Default
1	ON	Pedal: for standing operation	OFF
	OFF	Pedal: for seated operation	
2	ON	Operate when presser foot loweres	OFF
	OFF	Operate regardless of presser foot position	
3	ON		OFF
	OFF		
4, 5	ON, ON		OFF, OFF
	ON, OFF		
	OFF, ON		
	OFF, OFF		
6	ON	100 V, 110 V specifications	OFF/ON
	OFF	200 V, 400 V specifications	
7	ON		OFF
	OFF		
8	ON		OFF
	OFF		

Error code

Code	Cause	Remedy
E-00	EMERGENCY STOP switch was pressed.	To restart sewing: Press the DOWN key, then press the START key. To cancel sewing: Press the RESET key.
E-01	Upper thread breakage	To restart sewing: Press the DOWN key, then press the START key. To cancel sewing: Press the RESET key.
E-02	Needle up sensor is off when it should be on.	Raise the needle.
E-05	Needle feed home position sensor is off (on) when it should be on (off).	Turn off the power.
E-06	Feed home position sensor is off (on) when it should be on (off).	Turn off the power.
E-07	Presser foot home position sensor is off (on) when it should be on (off).	Turn off the power.
E-08	Cutter home position sensor is off when it should be on.	Turn off the power.
E-20	PMD overcurrent	Turn off the power.
E-21	Needle feed pulse abnormality	Turn off the power.
E-30	START switch is on when it should be off.	Turn off the START switch.
E-31	Presser foot switch is on when it should be off.	Turn off the presser foot switch.
E-32	Presser foot lifter switch is on when it should be off.	Turn off the presser foot lifter switch.
E-40	Control circuit board temperature rise error	Turn off the power.
E-41	Fan 1 not operating	Turn off the power.
E-42	Fan 2 not operating	Turn off the power.
E-44	+55 V power supply relay does not turn on.	Turn off the power.

Code	Cause	Remedy
E-50	Pattern shape for data created using the BAS-PC/300 does not match the pattern shape specifications.	Turn off the power.
E-51	X pitch error	Turn off the power.
E-52	Y pitch error	Turn off the power.
E-54	Overall cycle program stitch no. error	Turn off the power.
E-55	Single program stitch no. error (exceeds 700 stitches)	Turn off the power.
E-59	Sewing data error	Turn off the power.
E-62	Needle up error during operation	Turn off the power.
E-63	Needle down error during operation	Turn off the power.
E-64	Timing signal error during operation	Turn off the power.
E-74	EEPROM error	Turn off the power.
E-75	RAM error	Turn off the power.
E-80	Communication ready error	Turn off the power.
E-81	Communication error	Turn off the power.
E-90	Machine motor overload	Turn off the power.
E-92	Machine motor operation error	Turn off the power.
E-93	Blown fuse	Turn off the power.
E-94	IPM abnormality	Turn off the power.
E-95	High voltage error	Turn off the power.
E-96	Low voltage error	Turn off the power.
E-97	Machine motor locked	Turn off the power.

Gauge part interchangeability

• The table below shows the main B816 gauge parts which can also be used with the B800E.

Cutter	109837-001, 107200-001, S03278-001, 107205-001, 107204-001, 107207-001, 109838-001, 107210-001, 143780-001, S25641-001, S25642-001, S30294-001, S01271-001, S01272-001, S03280-001, S01273-001, S01274-001, S01275-001, S01276-001, S35630-001
Work clamp assy (Work clamp)	159072-101(147113-001), 158982-101(159581-001), 159074-101(159579-001), 159217-101(159582-001), 159076-101(159580-001), 159764-101(159761-001), 159765-101(159762-001), 159766-101(159763-001), S01466-101(145136-001), S01467-101(144630-001), S01468-101(144632-001),
Plastic plate	151843-001, S01270-001, 156612-001
Upper thread trimmer M	S19822-001 (Upper thread trimmer assy. is not changeable)
Upper thread trimmer U	S19823-001 (Upper thread trimmer assy. is not changeable)
Bobbin	159158-051

• Gauge parts such as the needle plate, fixed knife, movable knife, length feed plate, rotary hook and bobbin case which are intended for the B816 cannot be used with the B800E.

• The cutter and work clamp for the B800E can be used with the B816.

Specifications

Max. sewing speed	4,000 rpm
Zigzag mechanism	Pulse motor
Feed mechanism	Pulse motor
Presser foot lifter mechanism	Pulse motor (standard equipment)
Height of presser foot	13 mm (adjustable)
Knife mechanism	Double position solenoid
Lower thread holding device	Standard equipment
Bobbin presser	Standard equipment
Standard sewing pattern	21
Memory pattern	90
Max. number of stitch	700 stitches / program (Max. total number of stitch for cycle program is 3,000 stitches)
Needle	Schmetz Nm134
Data storage method	P-ROM (Custom made pattern can be added by BAS-PC/300)
Power supply	Single phase 110 V, 220 V, 230 V, 240 V, Three phase 220 V, 380 V, 400 V, 415 V 600 VA

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